



IN THE USPTO

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Art Unit: 3681

CLAIMS

CLAIMS – 1 through 10 (canceled)

CLAIM – 11 (new), what is claimed is;

a new, all gear drive / driven vehicle differential, that only allows inversely proportional rotation type “variability” between drive axle sections; that is effected by external force of the drive wheels when driven in a curved drive path, equal resistance to rotation is exerted upon the integrated drive axle sections / drive wheels due to; a particular type of planetary-gear in combination with a bevel pinion-gear type differential, the said particular type of planetary-gear having; inherent inverse rotation properties, the said new differential including:

a differential gear housing (8) that is drivable rotatively; and

bevel pinion-gears (13, 14) mounted in the said housing (8) for axial and radial rotation therewith; and

differential side bevel-gears (11, 12) mounted rotatively in the said housing (8),

meshing with the said bevel pinion-gears (13, 14); and

one axle shaft (5) being axially stationary to the side bevel-gear (12),

said axle shaft (5) being freely rotative within the said differential housing (8);

and said new differential further comprising:

at least one said differential planetary-gear comprising:

two sun gears (6) and (7), at least one planet gear (15, 16), a support structure (9),

one input shaft (19), and two output shafts (5, 10)



(CLAIM - 11 CONTINUED)

wherein:

- (a) said support structure (9) is independently rotative of any other housing of the said differential, the support structure (9) supporting the said at least one planet gear (15, 16), the said support structure (9) being axially stationary to the side bevel gear (11), the support structure (9) being axially and rotatively within the differential case (8), and
- (b) one input shaft (19) being axially stationary to the drive case (8), the said input shaft (19) having a smooth rounded inner surface throughout, and
- (c) a first sun gear (7) being open throughout the stock, along its central axis and being axially stationary to the end of the said input shaft (19), and
- (d) a first output shaft (5) being freely entered through and past the end of the input shaft (19) and past the said first sun gear (7); herein the end of the said first output shaft (5) protruding past the said first sun gear (7) and into the support structure (9), and
- (e) a second output shaft (10) being freely entered through the case (8); wherein the said second output shaft (10) is axially stationary to the said support structure (9), and
- (f) a second sun gear (6) being axially stationary to the end of the first output shaft (5), and
- (g) a gear support shaft / shafts (17, 18) being off-centered and stationary in the support structure (9) along the central axis of the differential, and
- (h) at least one planet gear (15, 16) orbitally engaged to the said first and second sun gears (6, 7); the said at least one planet-gear (15, 16) being rotatively stationary in the support structure (9) by way of the gear support shaft(s) (17, 18)

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Claim-12 (new), at least one planetary gear as claimed in claim 11 comprising:

**an inner support structure (9) axially and rotationally independent to the
afore said differential case (8), one input shaft (19), a first sun gear (7),
a first output shaft (5), a second output shaft (10), a second sun gear (6),
a shaft / shafts (17, 18), and planet gears / gears (15, 16);**

wherein:

- (a) said support structure (9) is independently rotative of any other housing of the
said differential, the support structure (9) supporting the said at least one planet
gear (15, 16), the said support structure (9) being axially stationary to the
side bevel gear (11), the support structure (9) being axially and rotatively
within the differential case (8), and**
- (b) one input shaft (19) being axially stationary to the drive case (8), the said
input shaft (19) having a smooth rounded inner surface throughout, and**
- (c) a first sun gear (7) being open throughout the stock, along it's central axis and
being axially stationary to the end of the said input shaft (19), and**
- (d) a first output shaft (5) being freely entered through and past the end of the
input shaft (19) and past the said first sun gear (7); herein the end of the said
first output shaft (5) protruding past the said first sun gear (7) and into the
support structure (9), and**
- (e) a second output shaft (10) being freely entered through the case (8); wherein
the said second output shaft (10) is axially stationary to the said support
structure (9), and**
- (f) a second sun gear (6) being axially stationary to the end of the
first output shaft (5), and**
- (g) a gear support shaft / shafts (17, 18) being off-centered and stationary in the
support structure (9) along the central axis of the differential, and**
- (h) at least one planet gear (15, 16) orbitally engaged to the said first and second
sun gears (6, 7); the said at least one planet-gear (15, 16) being rotatively
stationary in the support structure (9) by way of the gear support shaft(s) (17, 18)**